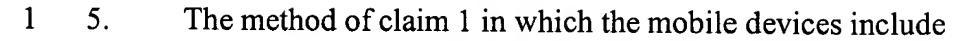
CLAIMS

4	4	A .4 4	
	1_	A method comp	mising
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- 2 running client modules on mobile devices,
- running a server module on a server that is accessible
- 4 through a communication network, and
- 5 running link modules on link devices that have
- 6 communication channels to the mobile devices and are capable of
- 7 accessing the server through the communication network,
- 8 the client, server, and link modules providing core services
- 9 through application programming interfaces to applications
- running on the mobile devices, the server, and the link devices.
 - 1 2. The method of claim 1 in which service applications also
- 2 run on the client modules to enable users of the mobile devices to
- 3 manage the core services.
- 1 3. The method of claim 1 in which the core services include
- 2 interaction with short-range wireless transceivers in the mobile
- 3 devices.
- 1 4. The method of claim 1 in which a mobile device operating
- 2 system is also running on the mobile devices and the client
- 3 modules use services of the operating system.



- 2 personal digital assistants or mobile phones.
- 1 6. The method of claim 1 in which the core services include at
- 2 least one of the following: broadcast of information about real-
- 3 world services; interaction with a wireless transceiver in the
- 4 mobile device; guaranteed message delivery; and encryption.
- 1 7. Apparatus comprising
- 2 mobile devices including client modules configured to run
- 3 on the devices,
- a server including a server module that is configured to be
- 5 accessible through a communication network, and
- 6 link devices including link modules that are configured to
- 7 use communication channels to the mobile devices and to access
- 8 the server through the communication network,
- 9 the client, server, and link modules being configured to
- 10 provide core services through application programming interfaces
- 11 to applications running on the mobile devices, the server, and the
- 12 link devices.
 - 1 8. The apparatus of claim 7 in which the mobile devices
- 2 include short-range wireless transceivers.
- 1 9. The method of claim 1 in which the mobile devices include
- 2 personal digital assistants or mobile phones.
- 1 10. A method comprising

- running client modules on wireless devices, the client
- 3 modules providing core services through application programming
- 4 interfaces to applications running on the devices, at least some of
- 5 the applications being associated with real-world services that are
- 6 provided by individuals or enterprises,
- 7 maintaining information identifying relationships between
- 8 each of the real-world services and at least one of the devices
- 9 through which the service is provided,
- the core services providing a sharing among the devices of
- 11 the information identifying the relationships between the real-
- world services and the devices.
 - 1 11. The method of claim 10 in which information about the
- 2 services available through each of the devices is broadcast by the
- 3 core services to the other devices.
- 1 12. The method of claim 10 in which the real-world services
- 2 associated with the devices are registered by the core services.
- 1 13. The method of claim 10 in which the real-world services
- 2 include at least one of communication services, computational
- 3 services, commercial services, or governmental services.
- 1 14. A method comprising:

2	maintaining in a wireless device a list of real-world		
3	services that are available from a user of the device through an		
4	application running on the device; and		
5	through a wireless communication channel, broadcasting		
6	information from the device indicative of the available real-world		
7	services.		
1	15. The method of claim 14 in which the information is		
2	broadcast periodically.		
1	16. The method of claim 14 in which another wireless device		
2	that receives the broadcast information accesses one of the		
3	available real-world services.		
1	17. Apparatus comprising:		
2	a wireless device containing a list of real-world services		
2	a wireless device containing a list of real-world services that are available from a user of the device through an application		
3	that are available from a user of the device through an application		
3 4	that are available from a user of the device through an application running on the device; and		
345	that are available from a user of the device through an application running on the device; and a medium storing a program that configures the wireless		
3456	that are available from a user of the device through an application running on the device; and a medium storing a program that configures the wireless device to broadcast information over a wireless communication		
3456	that are available from a user of the device through an application running on the device; and a medium storing a program that configures the wireless device to broadcast information over a wireless communication channel from the device about the available real-world services.		

4	running a server module on a server that is accessible on a		
5	communication network,		
6	running link modules on link devices that have		
7	communication links to the mobile devices and are capable of		
8	accessing the server through the communication network,		
9	the client modules providing core services through		
0	application programming interfaces to applications running on the		
1	mobile devices,		
2	receiving a message from a user of one of the mobile		
3	devices through one of the applications running on the device, the		
4	message being directed to another user of an application running		
5	on another one of the mobile devices, and		
6	delivering the message to the other user through the		
7	Internet.		
1	19. The method of claim 18 in which the message is sent		
2	through the links and the server.		
1	20. The method of claim 18 in which the client module running		
2	on the device from which the message is sent determines whether		
3	the target mobile device is within short-range wireless distance,		
4	and, if not, the client module forwards the message to one of the		

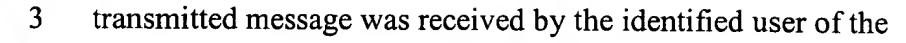
link modules.

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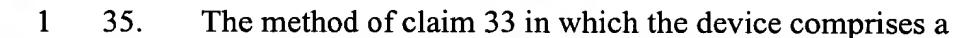


- 2 the message to the server through the Internet.
- 1 22. The method of claim 21 in which the server module
- 2 determines the location of the target mobile device and identifies a
- 3 communication channel through which to forward the message to
- 4 the other user.
- 1 23. A method comprising:
- 2 maintaining a list of short-range wireless devices within
- 3 range of a first short-range wireless device;
- 4 transmitting a message from an identified user of the first
- 5 device to a second identified user of a second wireless device over
- 6 a communication medium,
- 7 the communication medium being selected based at least in
- 8 part on whether the second device is included on the list, the
- 9 selection being transparent to the user of the first device.
- 1 24. The method of claim 23 in which, if the second device is
- 2 included on the list, the message is transmitted to the second
- device over a short-range radio link, and if the second device is not
- 4 included on the list, the message is transmitted to the second
- 5 device using another communication medium.
- 1 25. The method of claim 23 in which, if the second device is
- 2 not included on the list, the message is transmitted to the second
- device over either the Internet or by mobile telephony.
- 1 26. A method comprising:

- transmitting a message from an identified user of a short-
- 3 range wireless device to an identified user of another device; and
- 4 automatically confirming to the identified user of the first
- 5 device whether the transmitted message was received by the
- 6 identified user of the other device.
- 1 27. The method of claim 26 including:
- 2 storing information about the transmitted message in the
- 3 first device after transmission; and
- 4 checking for a match between received confirmations and
- 5 the transmitted message stored in the device.
- 1 28. The method of claim 27 including resending the transmitted
- 2 message if a confirmation for the transmitted message is not
- 3 received within a specified period.
- 1 29. The method of claim 27 including notifying a
- 2 communications manager in the first device if the transmitted
- 3 message is undeliverable.
- 1 30. The method of claim 29 in which the notifying includes
- 2 providing an explanation of why the transmitted message was
- 3 undeliverable.
- 1 31. The method of claim 29 also including removing the
- 2 transmitted message from the device after it is confirmed that the



- 4 other device.
- 1 32. The method of claim 27 in which the device from which
- 2 the message is transmitted is responsible for guaranteeing the
- 3 delivery.
- 1 33. A method comprising
- running applications on devices that are associated with
- 3 respective owning entities,
- 4 sending a message from an initiating owning entity to a
- 5 target owning entity using one of the applications running on one
- of the devices associated with the initiating owning entity,
- 7 identifying one of the devices as being associated with the
- 8 target owning entity and as being accessible by a communication
- 9 link, and
- forwarding the message to the device that is associated with
- 11 the target owning entity through the communication link.
- each of the devices running a client module that encrypts
- and decrypts the message using a public key associated with the
- 14 owning entity of the device.
 - 1 34. The method of claim 33 in which the public key is stored in
- 2 the device and in a server through which the message passes.



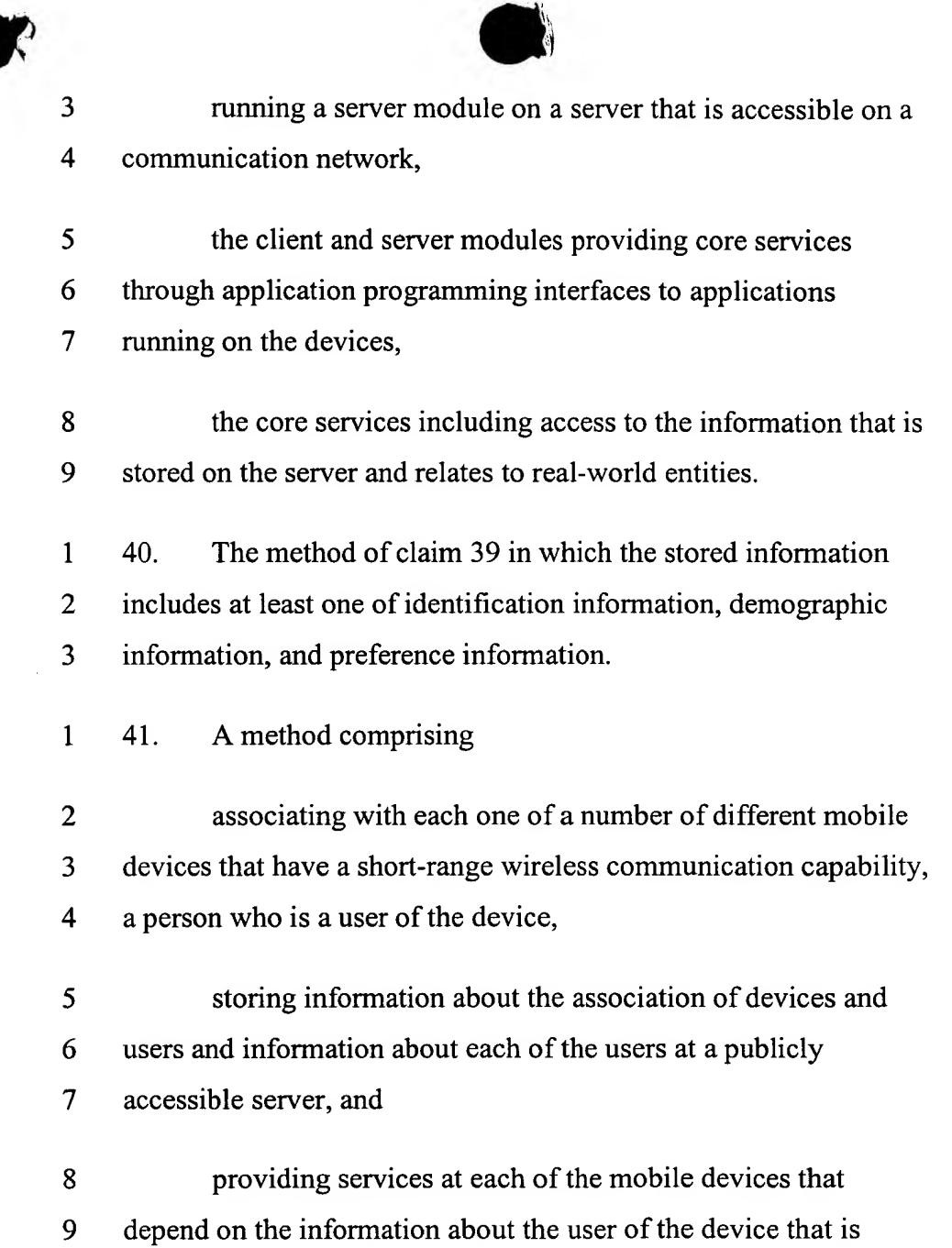
- 2 mobile device.
- 1 36. The method of claim 35 in which the owning entity
- 2 comprises a person.
- 1 37. The method of claim 33 in which the owning entity
- 2 comprises an enterprise and the device comprises a stationary
- 3 device.

1 38. A method comprising

- in a server, storing information that identifies real-world
- 3 entities and defines modes of interaction by the real-world entities
- 4 through distributed devices, each of the real-world entities
- 5 providing services to other real-world entities and using services of
- 6 other real-world entities,
- 7 enabling any of the real-world entities using any arbitrary
- 8 one or more of the distributed devices to log into the server,
- 9 loading portions of the stored information from the server
- 10 to the device being used, and
- regulating the interaction of the real-world entity using the
- device with other real-world entities based on the stored
- information, the interaction including the use of the services of the
- 14 other real-world entities.
 - 1 39. The method of claim 38 also including
 - 2 running client modules on the device,

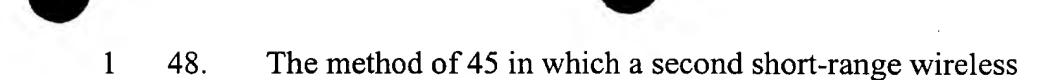
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stored at the server.



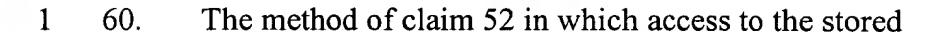


- 2 users is communicated to the devices from the server for use in
- 3 providing the functions.
- 1 43. The method of claim 41 in which the information about the
- 2 users includes at least one of: demographic information,
- 3 identification information, preference information, or location
- 4 information.
- 1 44. The method of claim 41 in which at least some of the
- 2 information about the users is stored on the mobile devices
- 3 associated with the users.
- 1 45. A method comprising:
- recognizing automatically that an entity in possession of a
- 3 short-range wireless device is within a particular geographic area;
- 4 obtaining data about the entity from a commonly accessible
- 5 database; and
- 6 sending information to the short-range wireless device, the
- 7 information sent to the device depending on the data obtained from
- 8 the database.
- 1 46. The method of claim 45 in which access to the data about
- 2 the entity in the commonly accessible database is contingent on
- 3 permission of the entity.
- 1 47. The method of claim 45 in which the entity can access and
- 2 modify its data in the commonly accessible database using the
- 3 wireless device.



- device recognizes that the entity is within the particular geographic
- 3 area, obtains the data, and sends the information.
- 1 49. The method of claim 47 in which the information sent to
- 2 the first device includes promotional material for facilitating a
- 3 transaction with an entity associated with the second device.
- 1 50. The method of claim 47 in which the entity obtains
- 2 information about an entity associated with the second device from
- 3 the commonly accessible database using the first device.
- 1 51. The method of claim 47 in which recognizing that the
- 2 entity is within a particular geographic area is based on receipt of a
- 3 message from the first device, the message including an
- 4 identification code mapped to the entity.
- 1 52. A method comprising:
- electronically storing, in a publicly accessible location,
- 3 information about real-world entities that are users of devices that
- 4 have short-range wireless communication capability,
- 5 providing client modules on the devices and a server
- 6 module at the publicly accessible location, the client modules and
- 7 the server module cooperating to provide guaranteed messaging
- 8 between users of any of the devices and to enable commercial
- 9 transactions between users of the devices based on the
- 10 electronically stored information.
- 1 53. The method of claim 52 in which

- one of the two wireless devices is fixed and one of the two
- 3 wireless devices is mobile.
- 1 54. The method of claim 52 in which
- 2 the user of one of the devices comprises a commercial
- 3 entity.
- 1 55. The method of claim 52 in which
- 2 the user of one of the devices comprises a consumer.
- 1 56. The method of claim 52 in which
- 2 the transaction comprises delivery of marketing
- 3 information from one of the two devices to the other.
- 1 57. The method of claim 52 in which the transaction comprises
- 2 the use by one of the two devices of a service provided by means
- 3 of the other of the two devices.
- 1 58. The method of claim 52 in which
- 2 the transaction comprises electronic messaging.
- 1 59. The method of claim 52 in which
- 2 the transaction occurs when the two devices are out of
- 3 range of each other.



- 2 information is under the control of the user to which it pertains.
- 1 61. The method of claim 52 in which the stored information
- 2 comprises the location of the user.
- 1 62. The method of claim 52 in which the stored information
- 2 comprises consumption preferences of a consumer.
- 1 63. The method of claim 52 in which each of the users is
- 2 associated with more than one of the devices.
- 1 64. The method of claim 52 in which the transaction is effected
- 2 between the two users through the server that is located out of
- 3 range of the two devices.
- 1 65. The method of claim 52 in which the two devices are in
- 2 range of each other and the transaction is effected between two
- 3 users carrying the two devices.
- 1 66. The method of claim 52 in which the transaction comprises
- 2 sending an electronic business card from one of the devices to
- another one of the devices and displaying the card on the other one
- 4 of the devices.
- 1 67. The method of claim 52 in which the transaction comprises
- 2 an electronic message communicated from one of the users to the
- 3 other through at least one of the two devices and by a route that
- 4 includes a mode of communication that is selected from among the
- 5 Internet, mobile telephony, and short-range wireless
- 6 communication, the selection being made without the user's
- 7 awareness.



- at a first device, receiving information from a second
- device through a short-range wireless communication channel, the
- 4 information identifying an actual geographic location of the second
- 5 device based on signals received from GPS sources, and
- 6 updating a derived geographic location stored at the first
- device based on the information received from second device.
- 1 69. The method of claim 68 in which the derived geographic
- location is updated to be the same as the actual geographic location
- 3 of the second device.
- 1 70. The method of claim 68 in which the first device receives
- 2 information over time from multiple other devices, the information
- 3 representing the actual GPS geographic locations of the other
- 4 devices, and
- 5 the derived geographic location is updated from time to
- 6 time based on the information received over time from the other
- 7 devices.
- 1 71. The method of claim 68 in which the first device is mobile
- 2 and the second device is stationary.

3